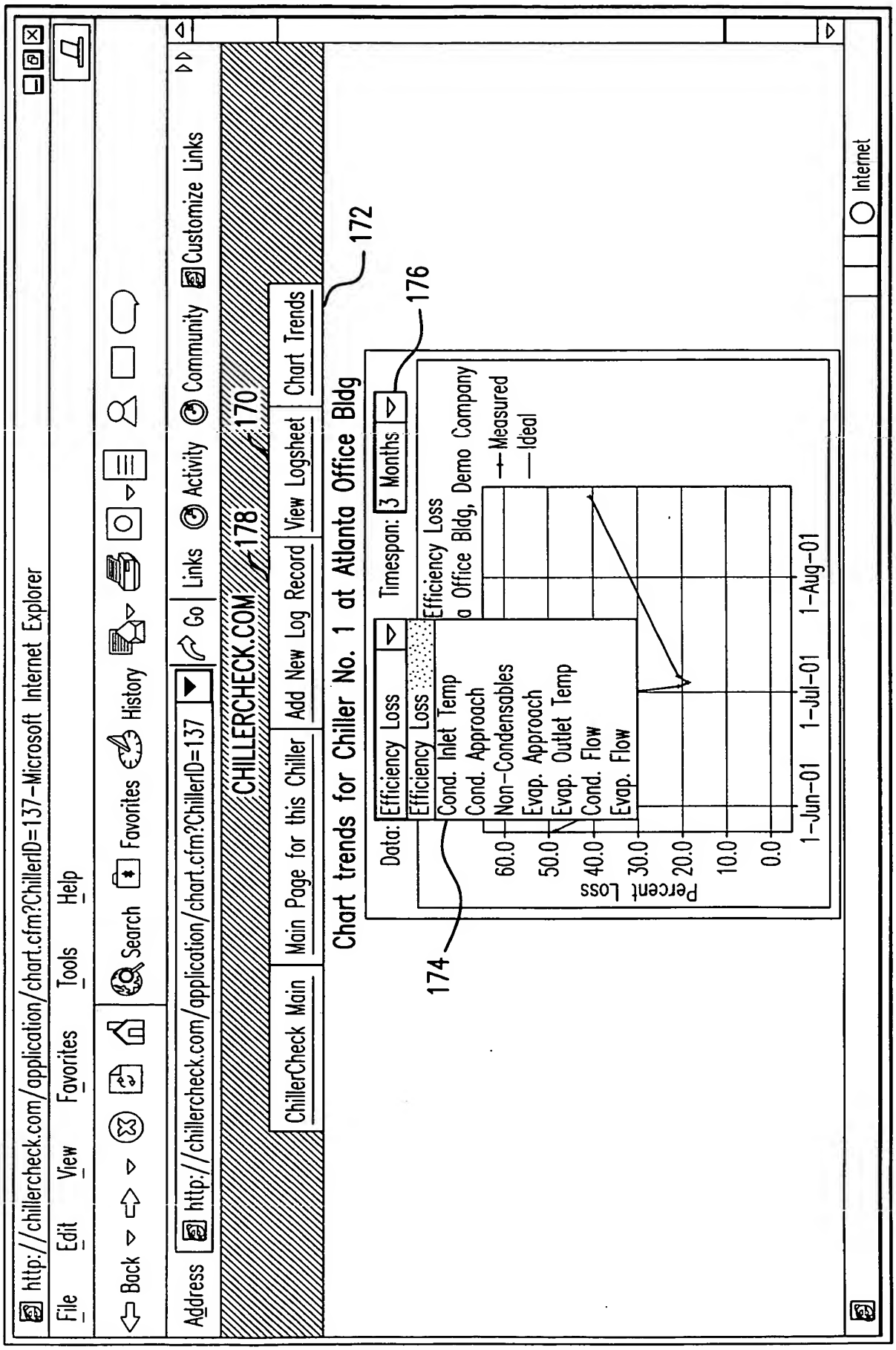

http://chillercheck.com/application/chart.cfm?ChillerID=137-Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Address http://chillercheck.com/application/chart.cfm?ChillerID=137
Go Links Activity Community Customize Links
CHILLERCHECK.COM
ChillerCheck Main
Main Page for this Chiller
Add New Log Record
View Logsheet
Chart Trends
Chart trends for Chiller No. 1 at Atlanta Office Bldg
Data: Efficiency Loss
Timespan: 3 Months
Efficiency Loss
Efficiency Loss
Cond. Inlet Temp
Cond. Approach
Non-Condensables
Evap. Approach
Evap. Outlet Temp
Cond. Flow
Evap. Flow
a Office Bldg, Demo Company
Measured
Ideal
Percent Loss
60.0
50.0
40.0
30.0
20.0
10.0
0.0
1-Jun-01
1-Jul-01
1-Aug-01
Internet
170
172
174
176
178

FIG.10

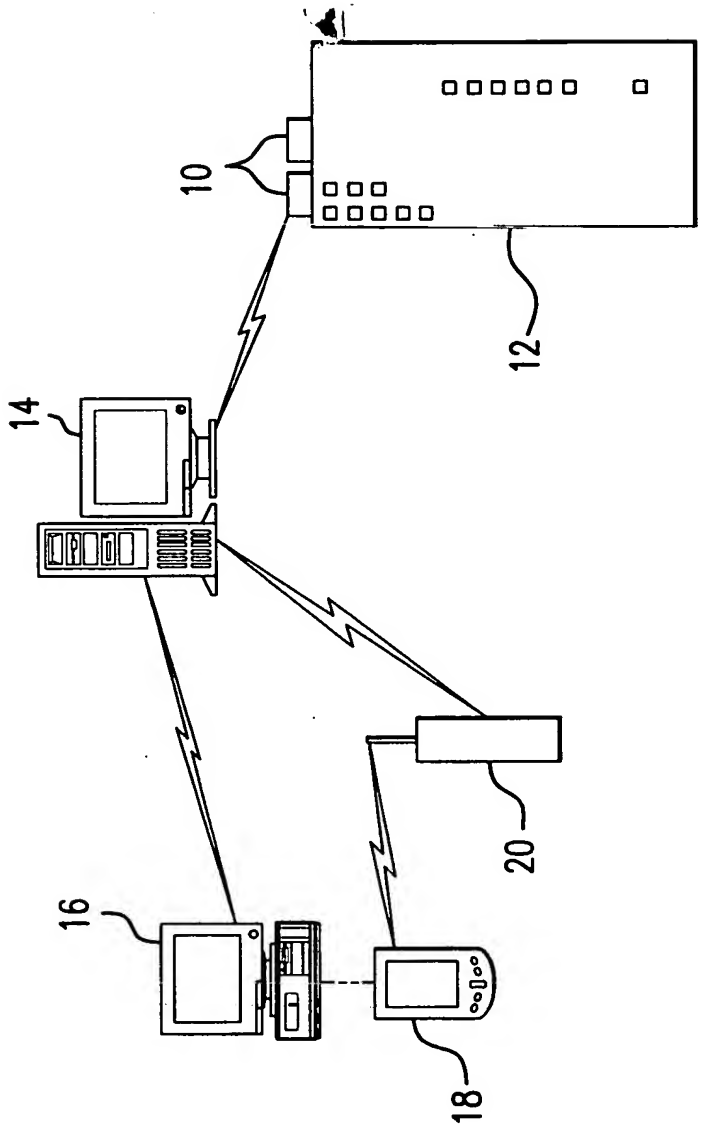


FIG.1

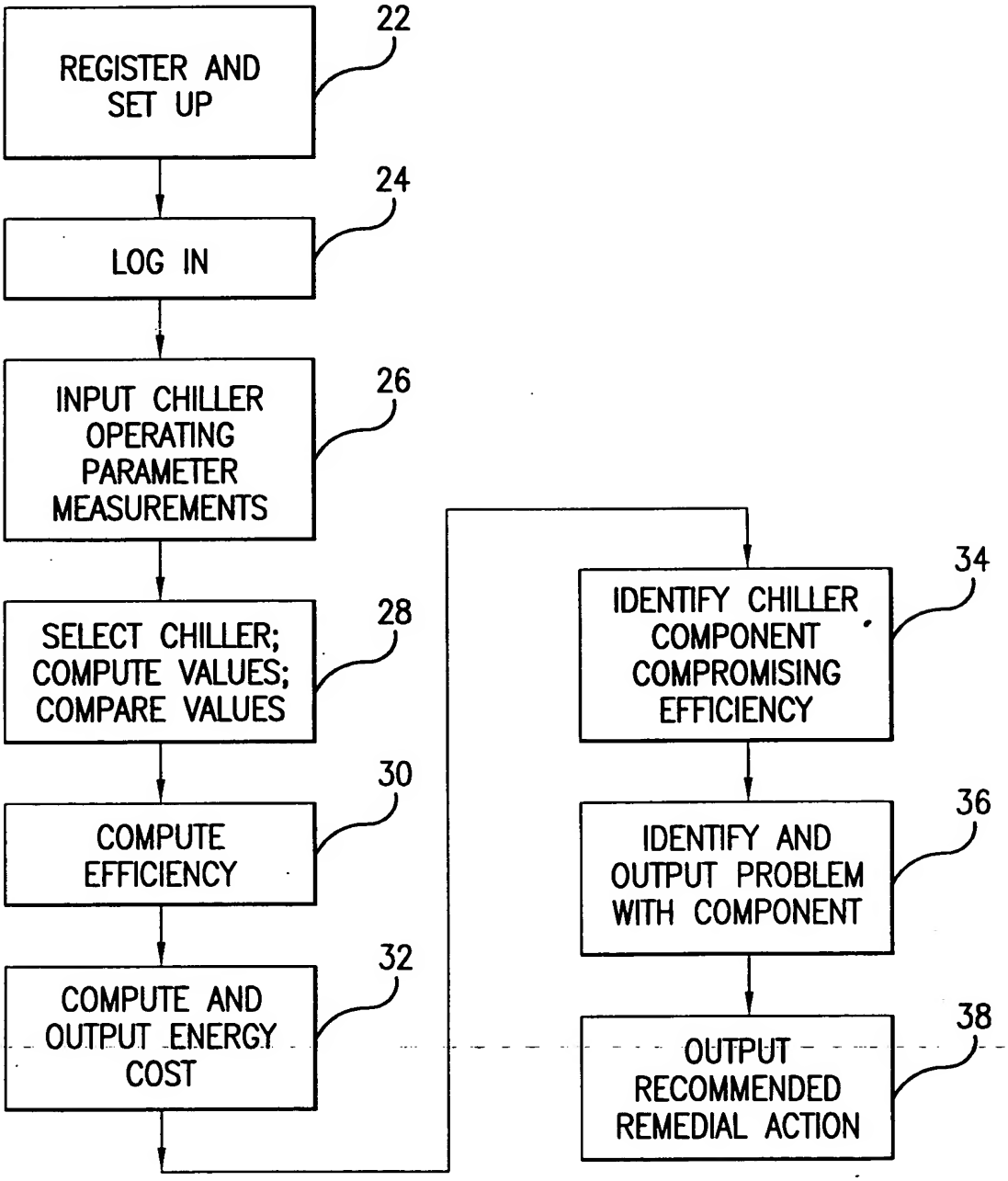


FIG.2

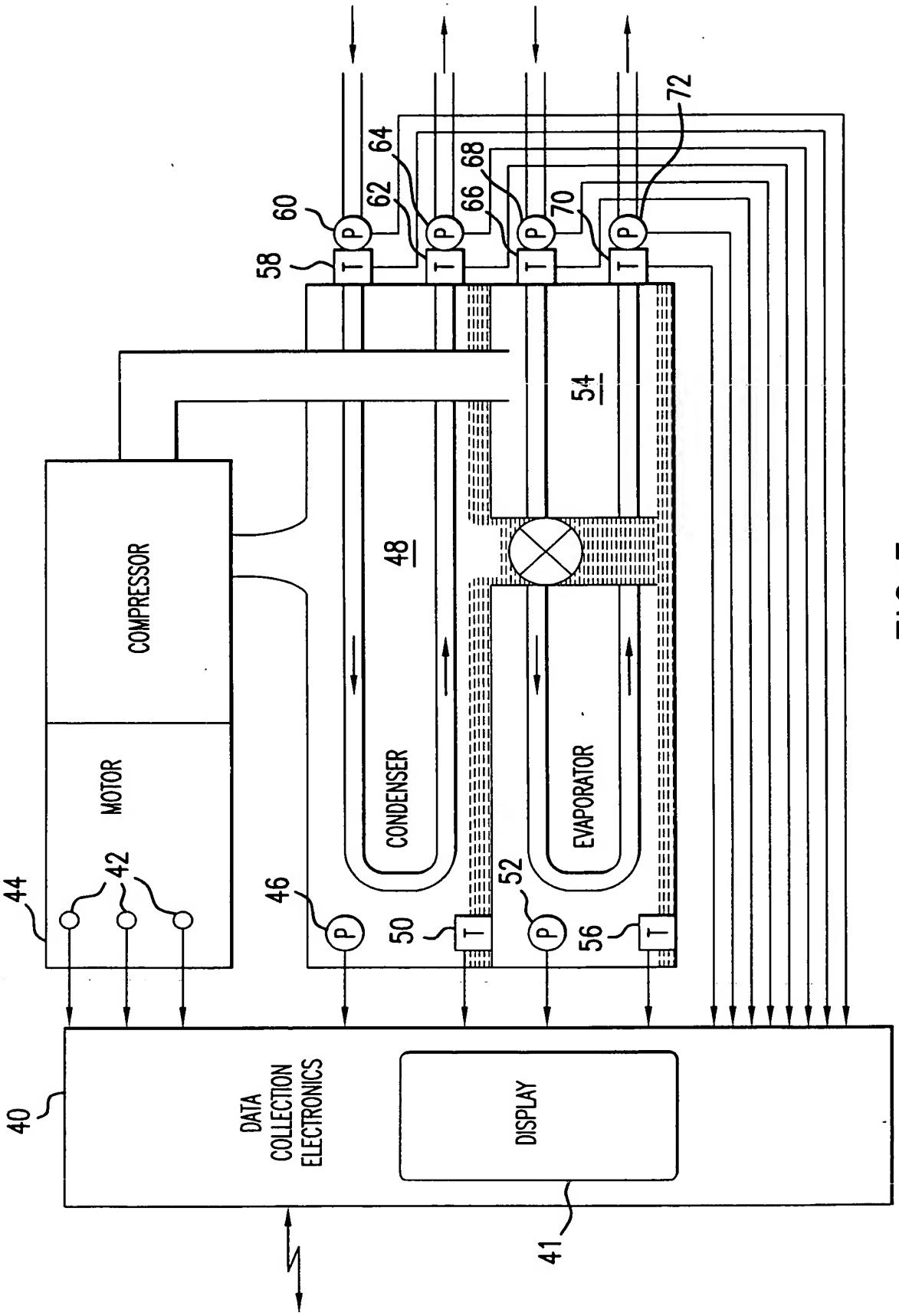


FIG.3

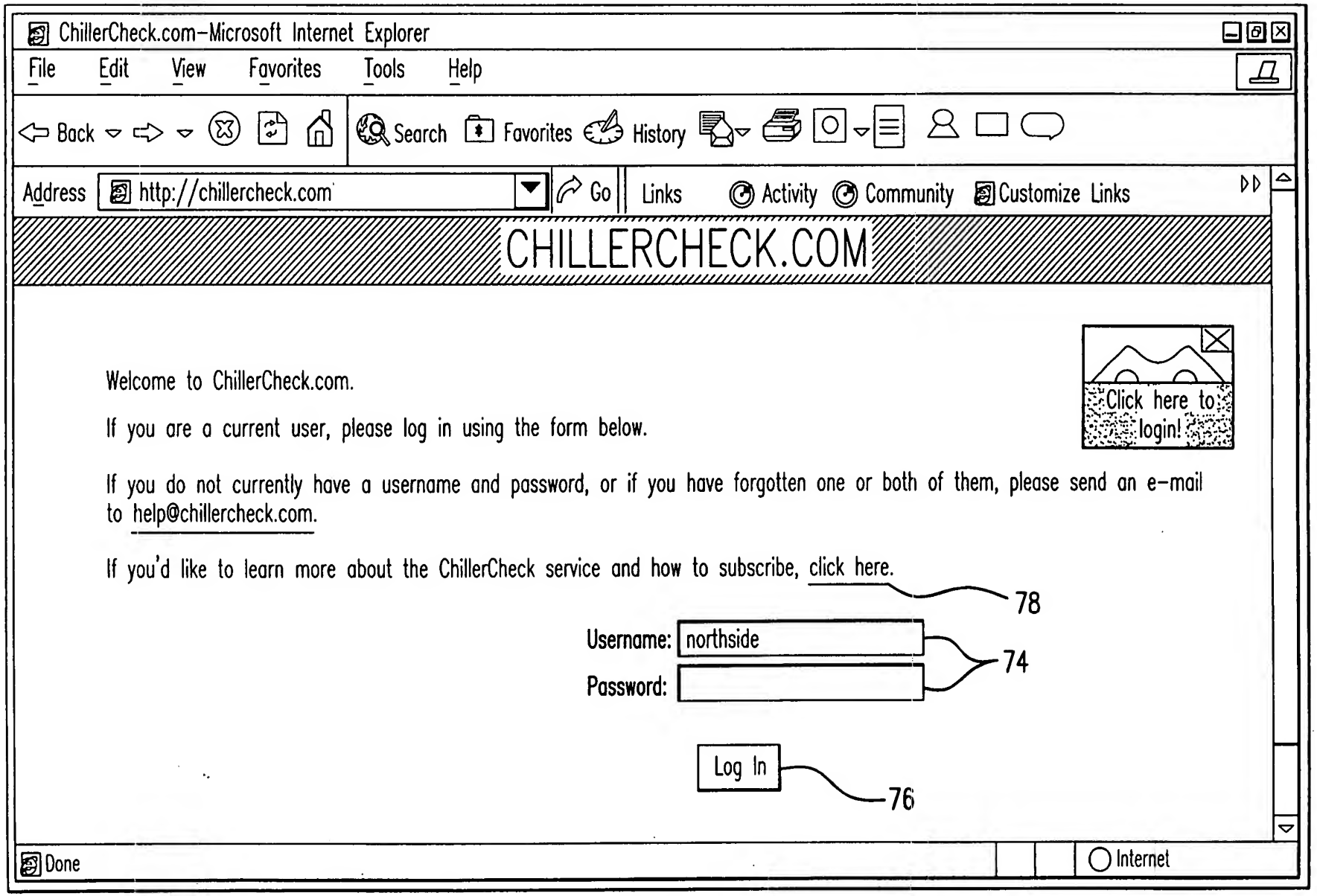
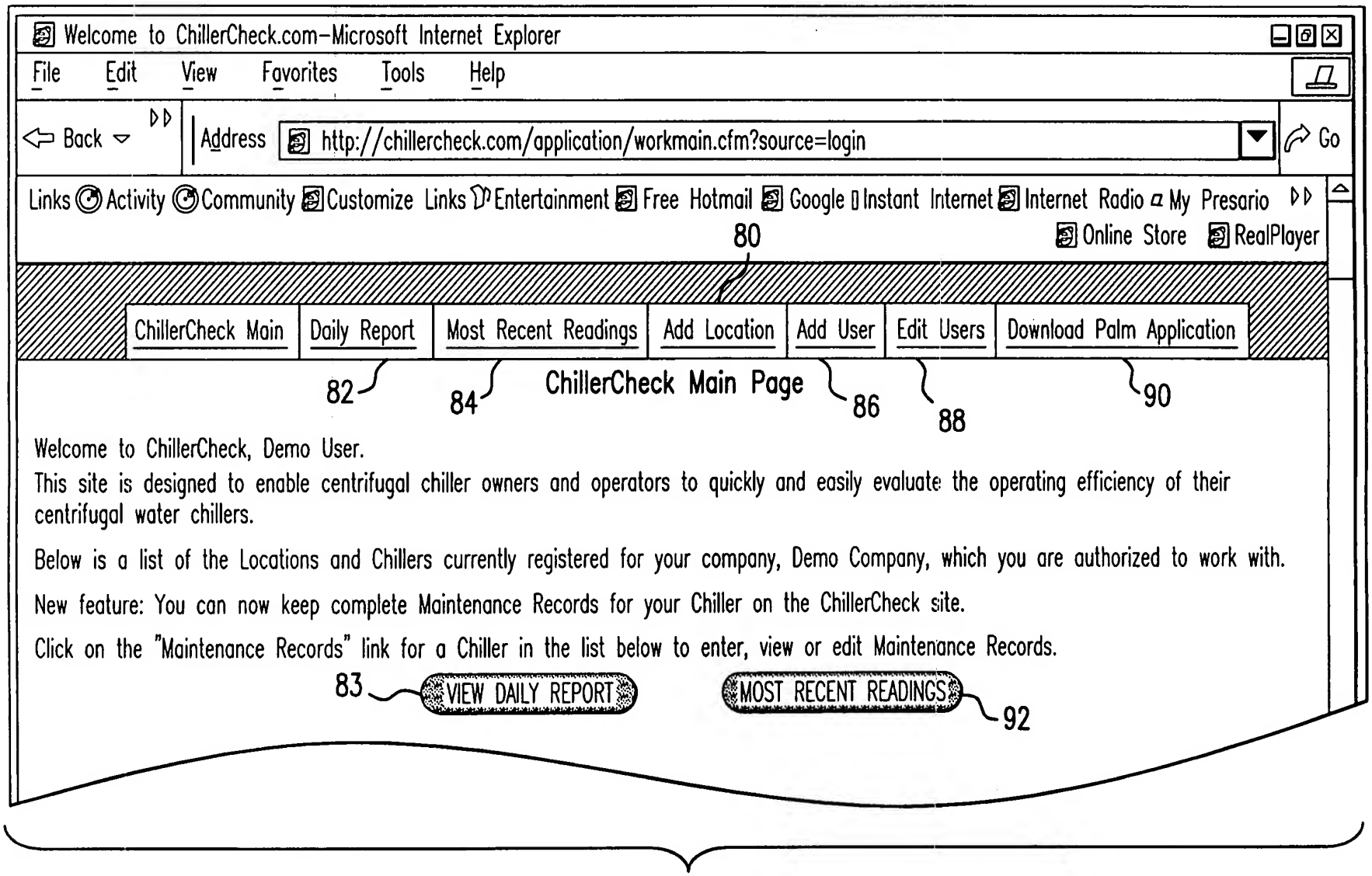


FIG.4



CONT'D ON FIG.5-1

FIG.5

Inventor: Lawrence J. Seigel
Title: "METHOD AND SYSTEM FOR EVALUATING THE EFFICIENCY OF AN AIR CONDITIONING APPARATUS"
Serial No.: 10/034,785
Docket No.: 03237.0001U2
Filing Date: December 27, 2001
Contact: Lawrence D. Maxwell, Esq. (404) 688-0770

CONT'D FROM FIG.5-1

Please click on the appropriate link to work with the information below.
If a red * appears next to the Chiller #, some necessary information has not yet been set up for the chiller. Click on the "Alert" link to see details.

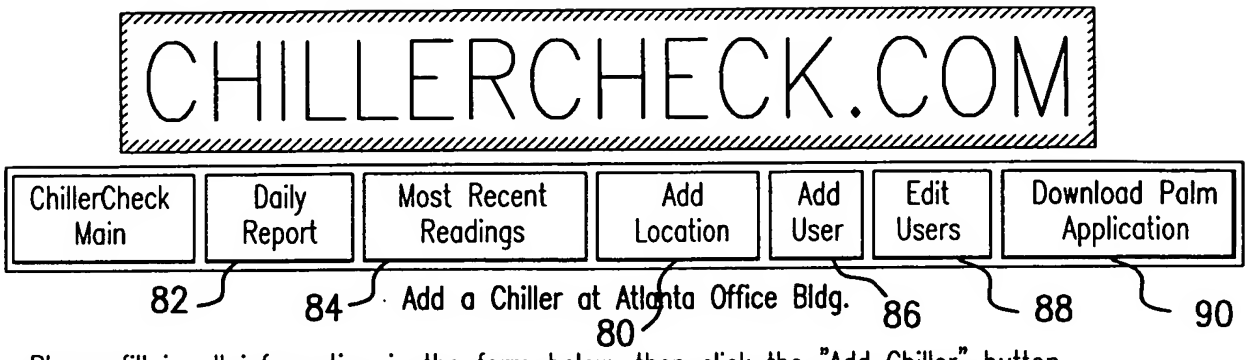
Admin Bldg		Add Chiller to this Location		Edit Location Information	Delete this Location
Chiller #: 2	View Logsheet	Log Records	Maintenance Records	Edit Chiller Information	Delete this Chiller
Central Plant		Add Chiller to this Location		Edit Location Information	Delete this Location
Chiller #: 1	View Logsheet	Log Records	Maintenance Records	Edit Chiller Information	Delete this Chiller
Chiller #: 2	View Logsheet	Log Records	Maintenance Records	Edit Chiller Information	Delete this Chiller

160 162 94 167 156 152 158 154 158

160 162 167 152 154

Internet

FIG. 5-1



Please fill in all information in the form below, then click the "Add Chiller" button.

You will then be taken back to the ChillerCheck Main page, where you can work with any of your Location, Chiller or Chiller Log records.

Note: If you do not have all the information below available at this time, you can still add the Chiller by filling out only the required information (marked with an * below) now. You can come back later and add the rest of the information. However, you will not be able to make efficiency calculations or graph trends until all Chiller information has been recorded.

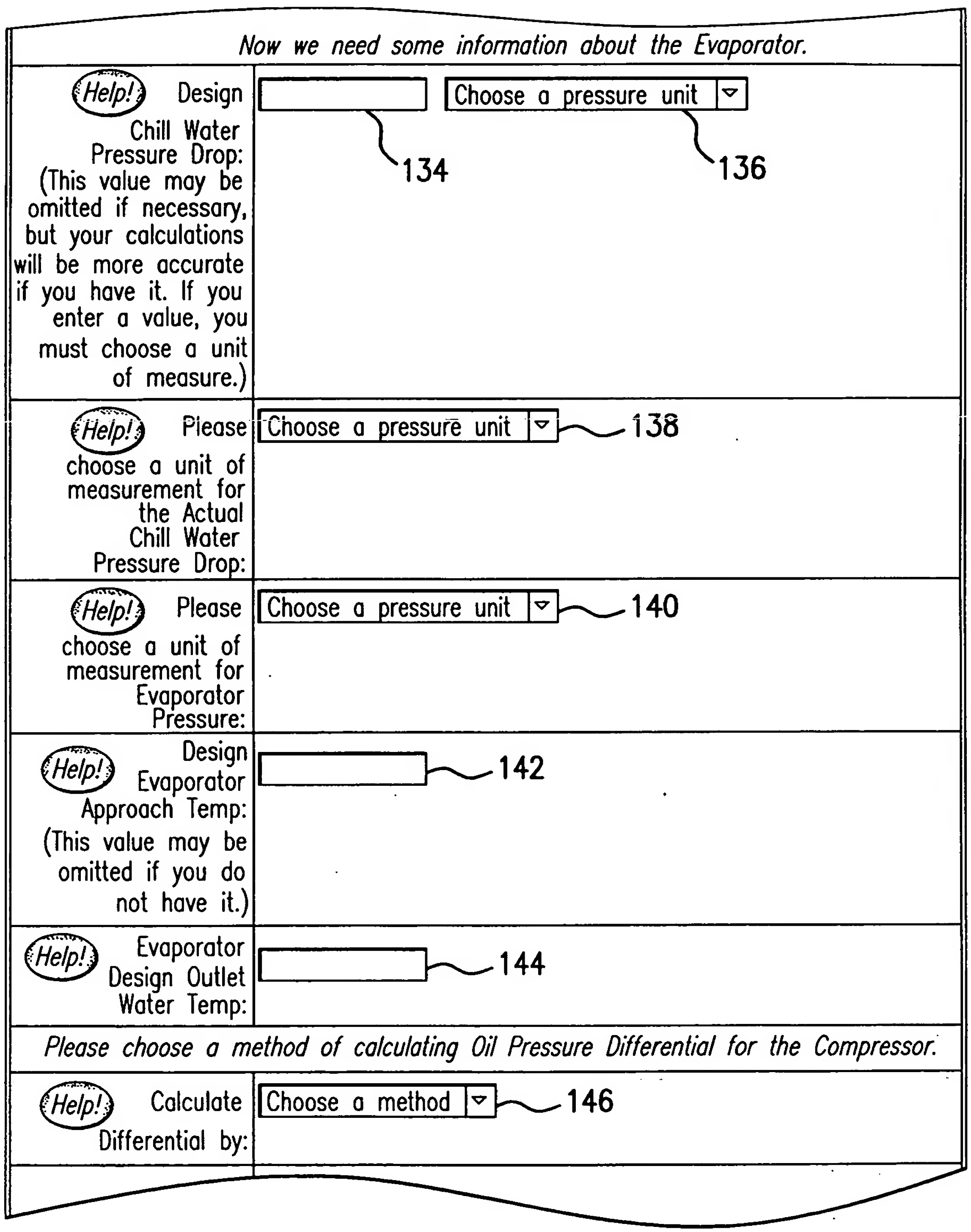
Chiller Information

Help! * Chiller #:	96
* Make:	Choose a Make 98
Help! * Model:	100
Help! Serial #:	102
Help! * Refigerant Type:	Choose a refrigerant 104
Help! Year Chiller Was Manufactured:	Choose a year of manufacture 106
Help! * Efficiency Rating (kw/ton):	108
Help! *Energy Cost ($/kw hour):	110

FIG. 6A

Help! * Weekly Hrs. of Operation:	112
Help! * Weeks Per Year of Operation:	114
Help! * Average Load Profile:	% 116
Help! * Tons:	118
Help! * Design Voltage:	120
Help! * Full-Load Amperage:	122
Now we need some information about the Condenser.	
Help! Design Condenser Water Pressure Drop: (This value may be omitted if necessary, but your calculations will be more accurate if you have it. If you enter a value, you must choose a unit of measure.)	124 Choose a pressure unit 126
Help! Please choose a unit of measurement for the Actual Condenser Water Pressure Drop:	Choose a pressure unit 128
Help! Please choose a unit of measurement for Condenser Pressure:	Choose a pressure unit 130
Design Condenser Approach Temp: (This Value may be omitted if you do not have it.)	132

FIG. 6B



Now we need some information about the Evaporator.
Help!
Design Chill Water Pressure Drop: (This value may be omitted if necessary, but your calculations will be more accurate if you have it. If you enter a value, you must choose a unit of measure.)
Choose a pressure unit
134
136
Help!
Please choose a unit of measurement for the Actual Chill Water Pressure Drop:
Choose a pressure unit
138
Help!
Please choose a unit of measurement for Evaporator Pressure:
Choose a pressure unit
140
Help!
Design Evaporator Approach Temp: (This value may be omitted if you do not have it.)
142
Help!
Evaporator Design Outlet Water Temp:
144
Please choose a method of calculating Oil Pressure Differential for the Compressor.
Help!
Calculate Differential by:
Choose a method
146

FIG. 6C

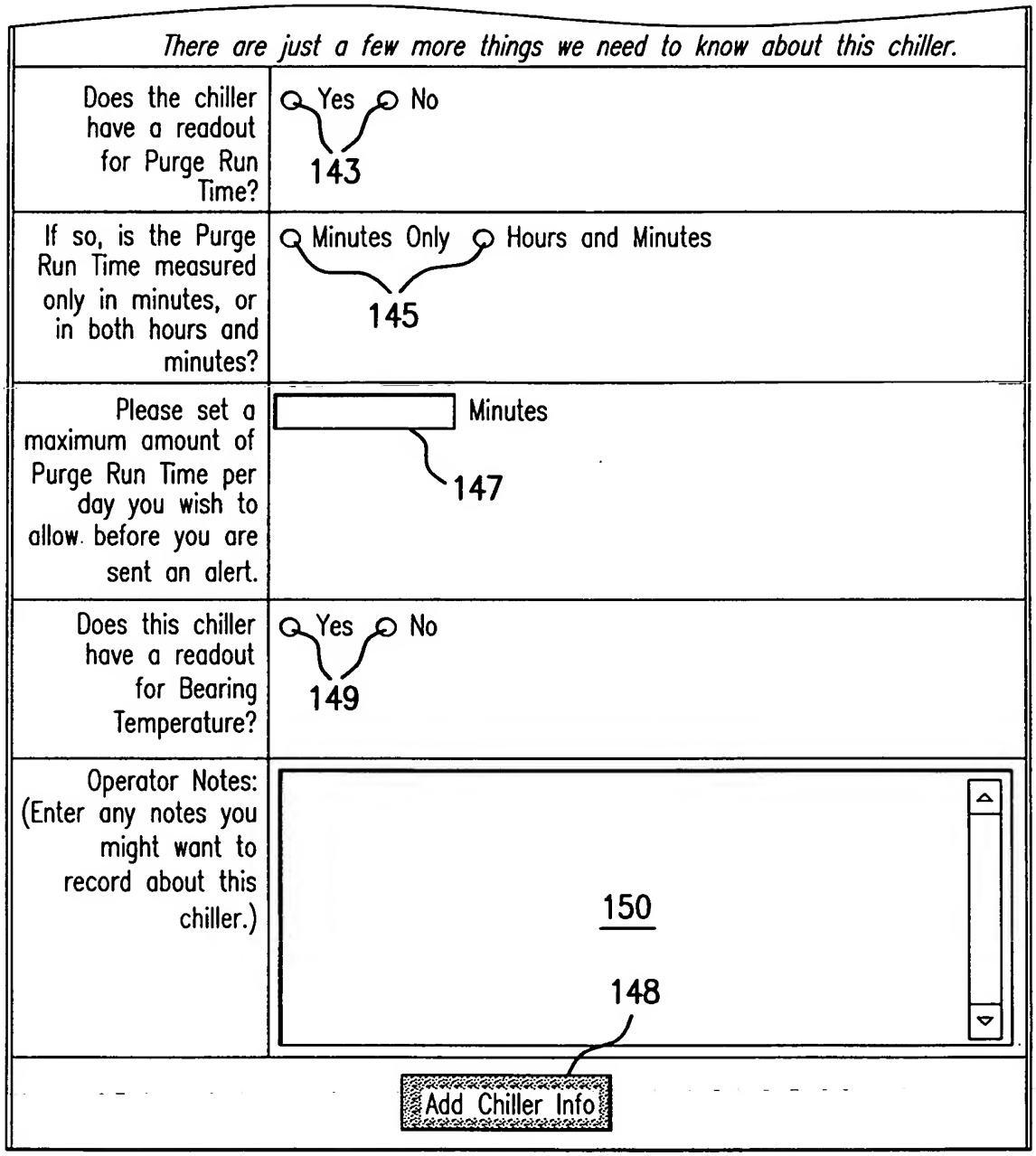
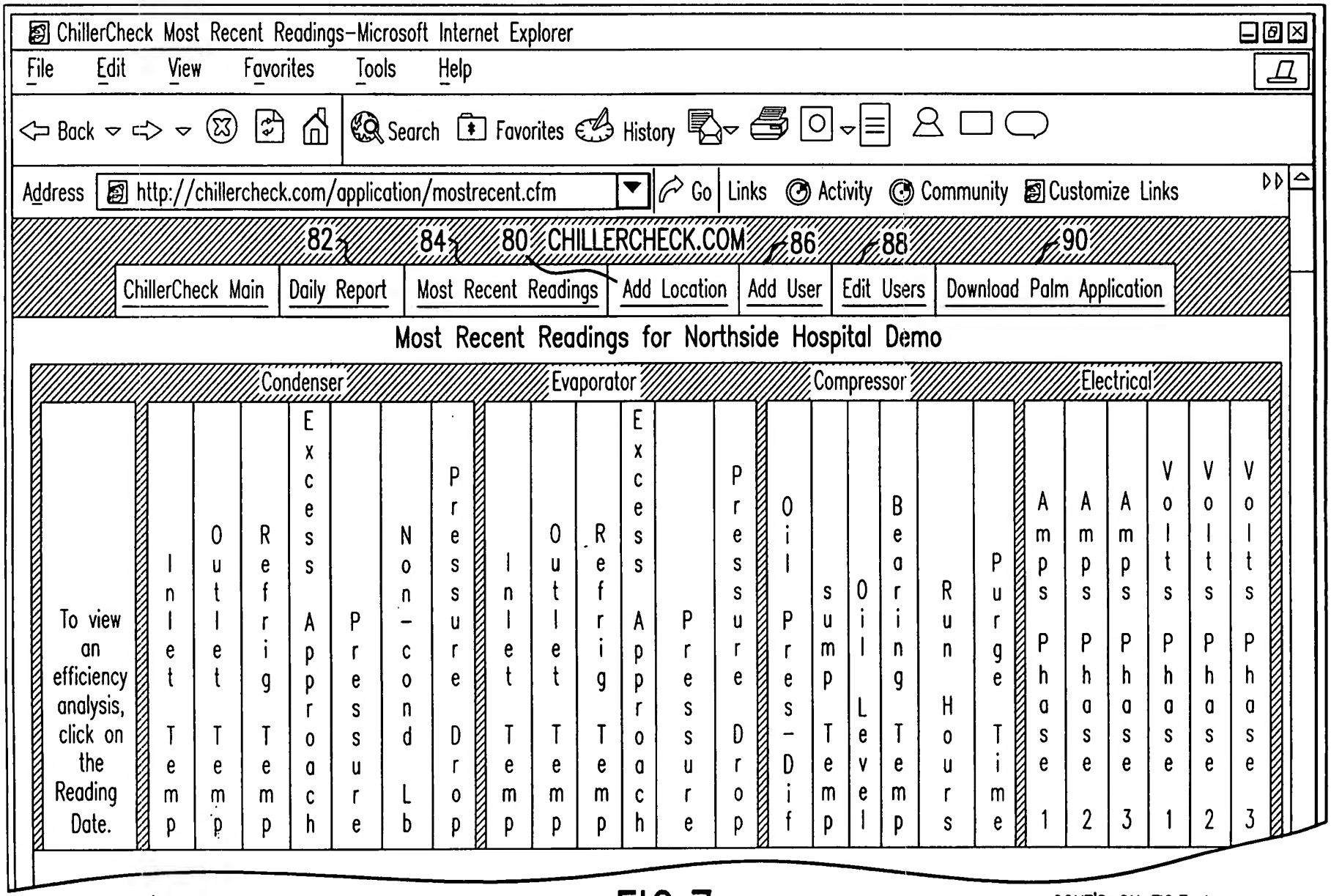


FIG. 6D



CONT'D ON FIG.7-1

FIG.7

CONT'D ON FIG.7-1

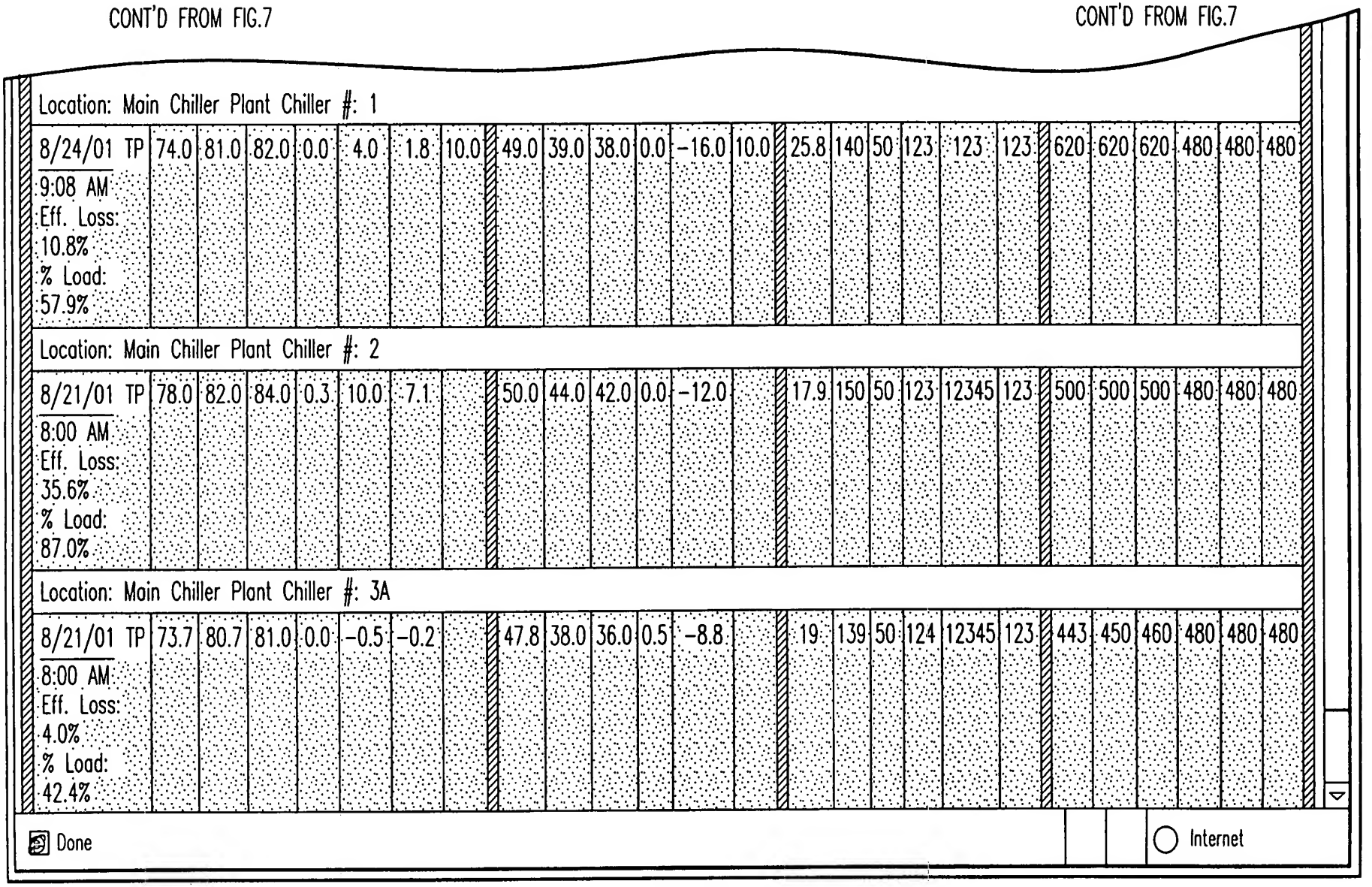
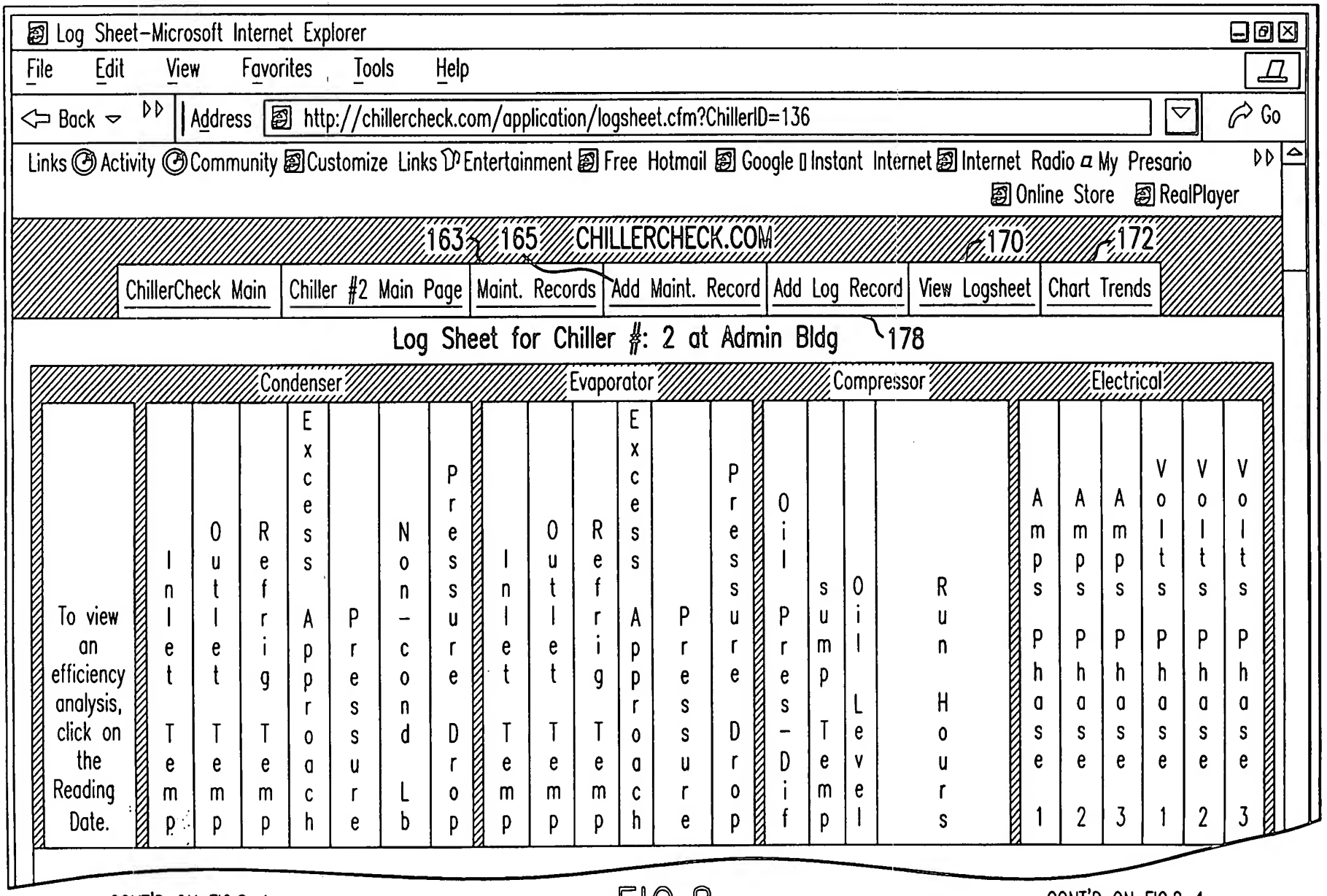

CONT'D FROM FIG.7
CONT'D FROM FIG.7
Location: Main Chiller Plant Chiller #: 1
8/24/01 TP 9:08 AM Eff. Loss: 10.8% % Load: 57.9%
74.0 81.0 82.0 0.0 4.0 1.8 10.0 49.0 39.0 38.0 0.0 -16.0 10.0 25.8 140 50 123 123 123 620 620 620 480 480 480
Location: Main Chiller Plant Chiller #: 2
8/21/01 TP 8:00 AM Eff. Loss: 35.6% % Load: 87.0%
78.0 82.0 84.0 0.3 10.0 7.1 50.0 44.0 42.0 0.0 -12.0 17.9 150 50 123 12345 123 500 500 500 480 480 480
Location: Main Chiller Plant Chiller #: 3A
8/21/01 TP 8:00 AM Eff. Loss: 4.0% % Load: 42.4%
73.7 80.7 81.0 0.0 -0.5 -0.2 47.8 38.0 36.0 0.5 -8.8 19 139 50 124 12345 123 443 450 460 480 480 480
Done
Internet

FIG. 7-1

Inventor: Lawrence J. Seigel
Title: "METHOD AND SYSTEM FOR EVALUATING THE EFFICIENCY OF AN AIR CONDITIONING APPARATUS"
Serial No.: 10/034,785
Docket No.: 03237.0001U2
Filing Date: December 27, 2001
Contact: Lawrence D. Maxwell, Esq. (404) 688-0770



CONT'D ON FIG.8-1

FIG.8

CONT'D ON FIG.8-1

Inventor: Lawrence J. Seigel
Title: "METHOD AND SYSTEM FOR EVALUATING THE EFFICIENCY OF AN AIR CONDITIONING APPARATUS"
Serial No.: 10/034,785
Docket No.: 03237.0001U2
Filing Date: December 27, 2001
Contact: Lawrence D. Maxwell, Esq. (404) 688-0770 Sheet 15 of 27

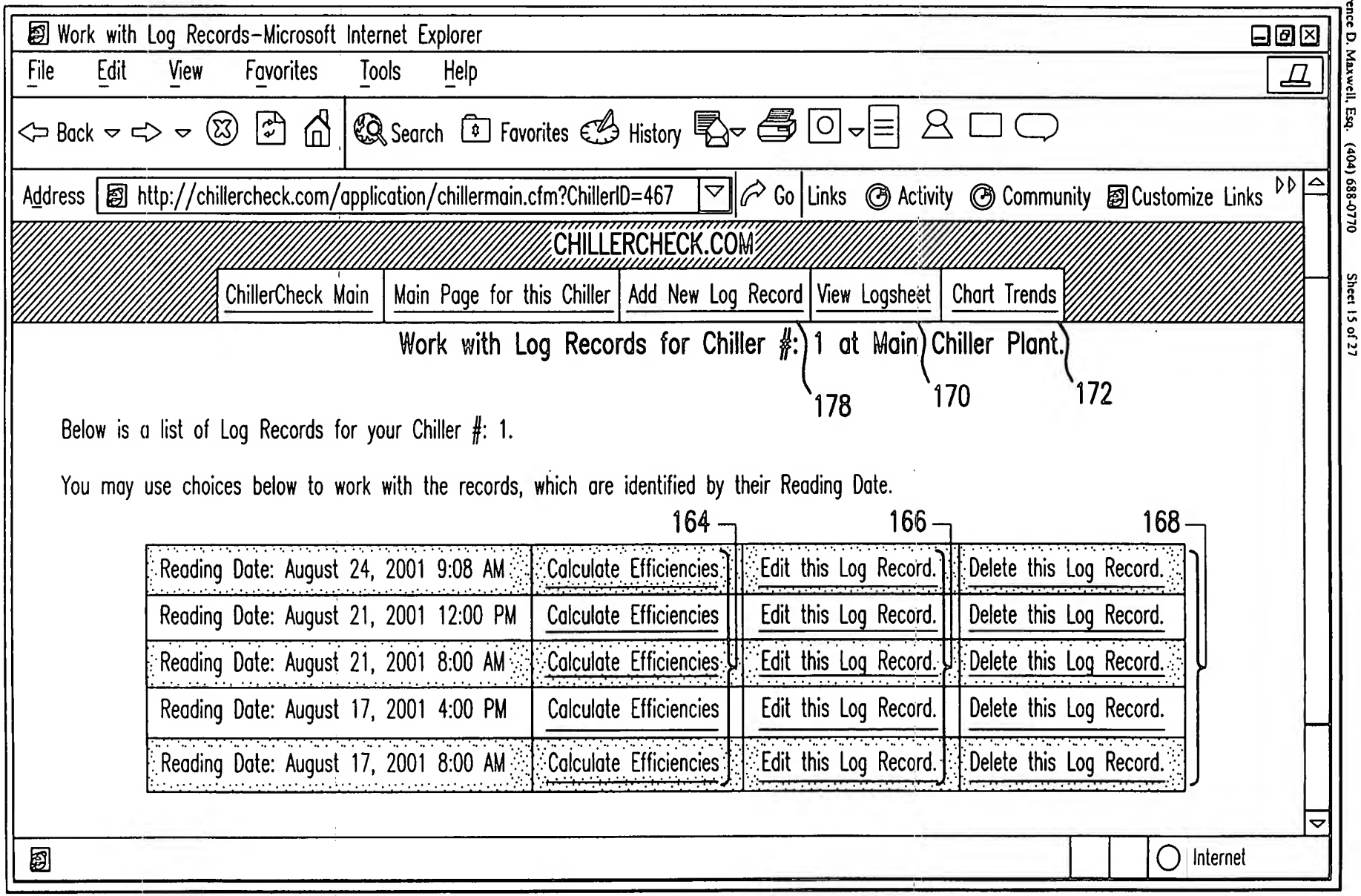


FIG.9

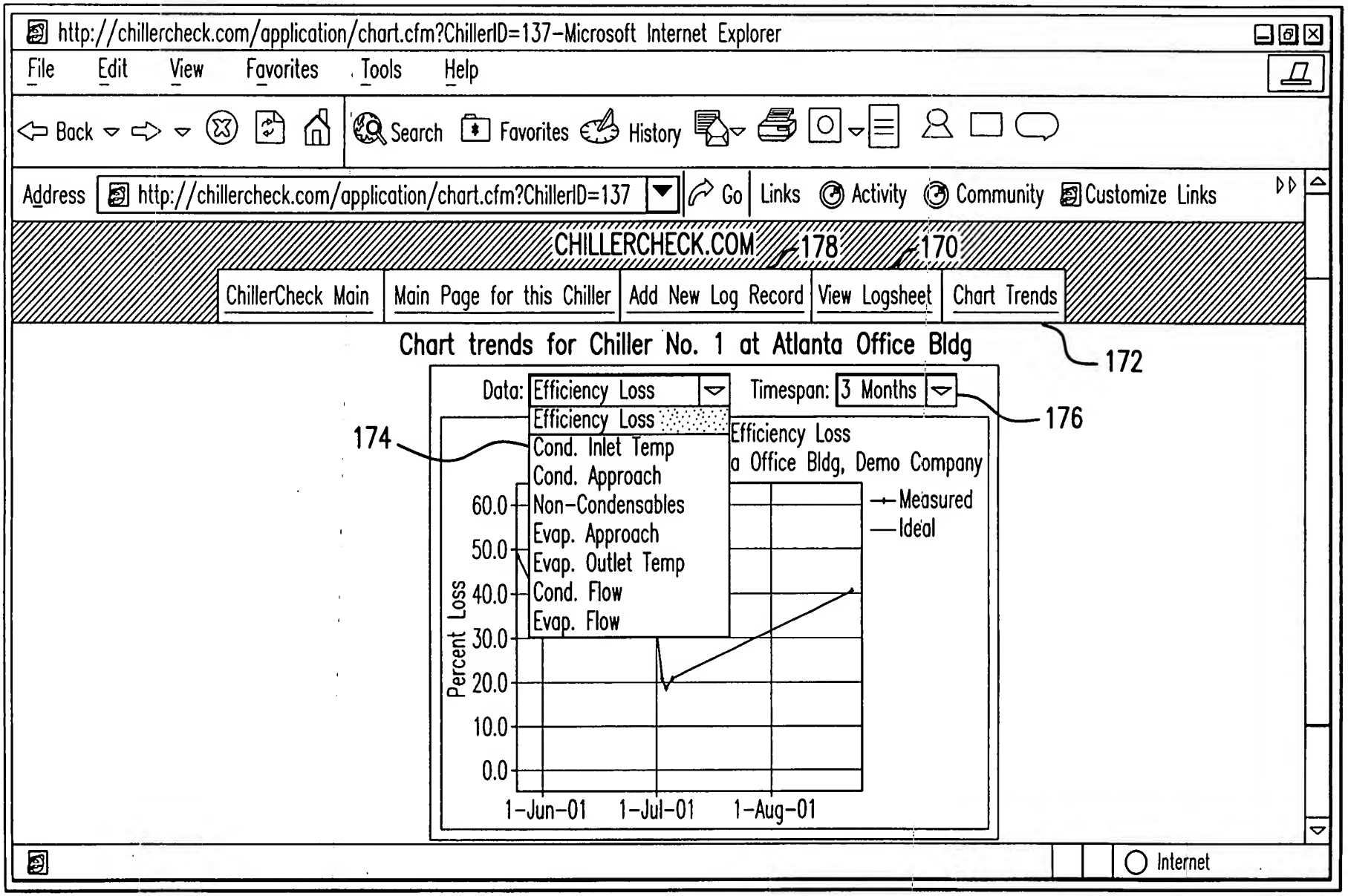


FIG.10

Add a Log Record for Chiller #: 1 at Main Chiller Plant.
178

Please enter your readings into the form below, then click the "Add Record" button:

Log Record

Operator:	Tim
Reading Date:	August 24, 2001 180
Reading Time:	9:32 AM 182
Condenser Readings	
Inlet Water Temp:	°F 184
Outlet Water Temp:	°F 186
Refrigerant Temp:	°F 188
Condenser Pressure:	PSIG 190
Actual Condenser Water Pressure Drop:	PSIG 192
Evaporator Readings	
Inlet Water Temp:	°F 194
Outlet Water Temp:	°F 196
Refrigerant Temp:	°F 198
Evaporator Pressure:	In. Hg. 200
Actual Chill Water Pressure Drop:	PSIG 202

FIG. 11A

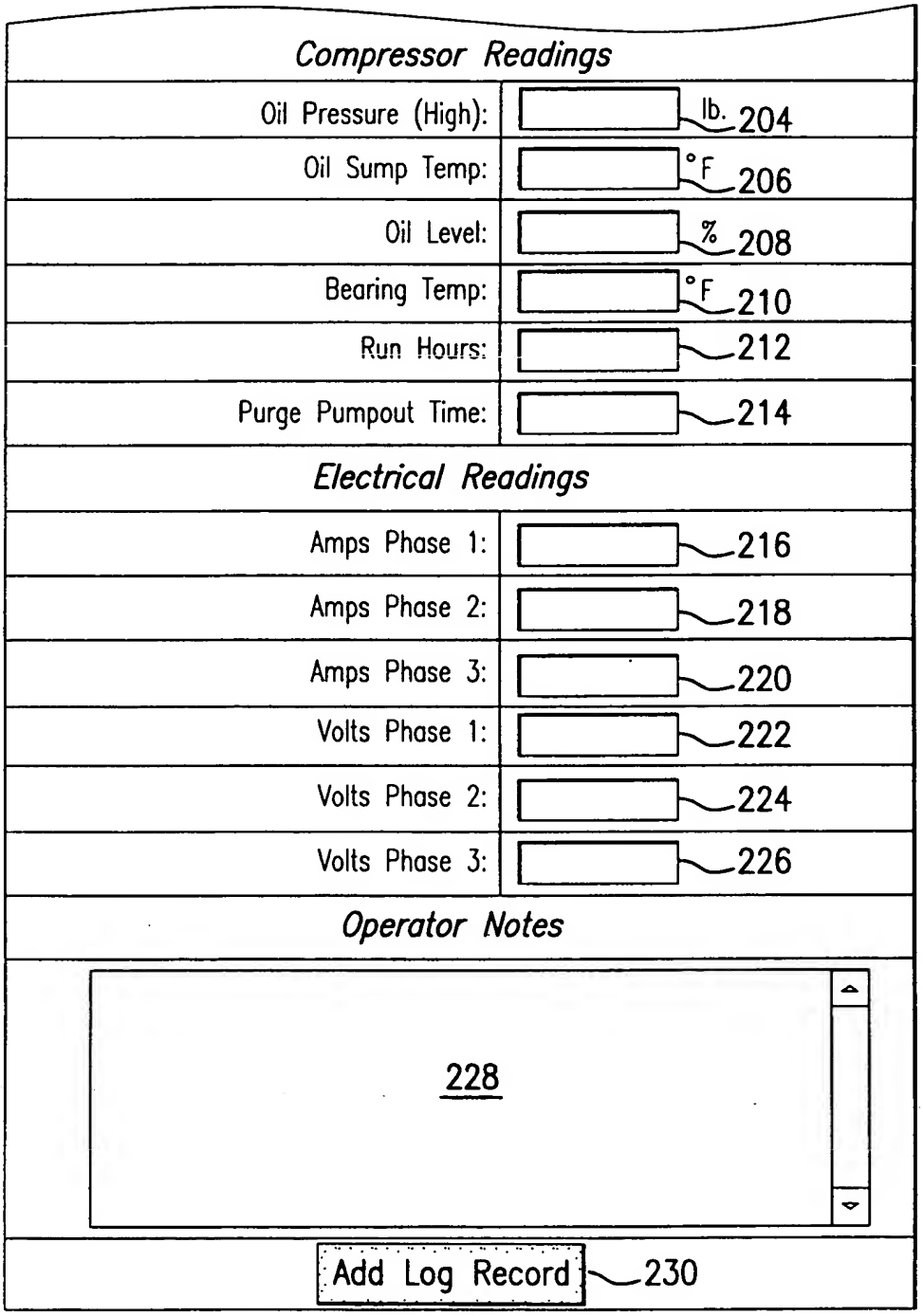


FIG. 11B

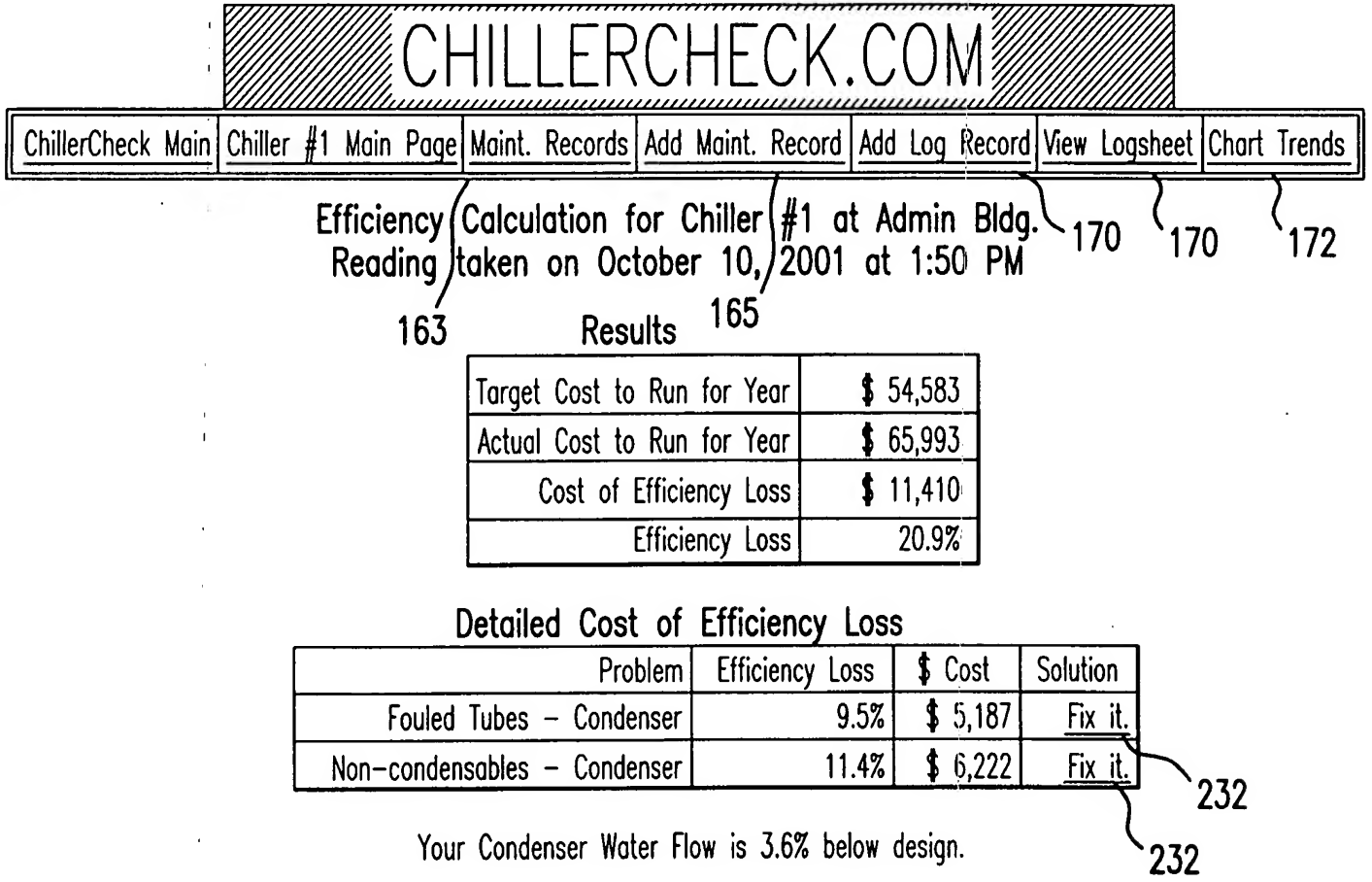


FIG. 12

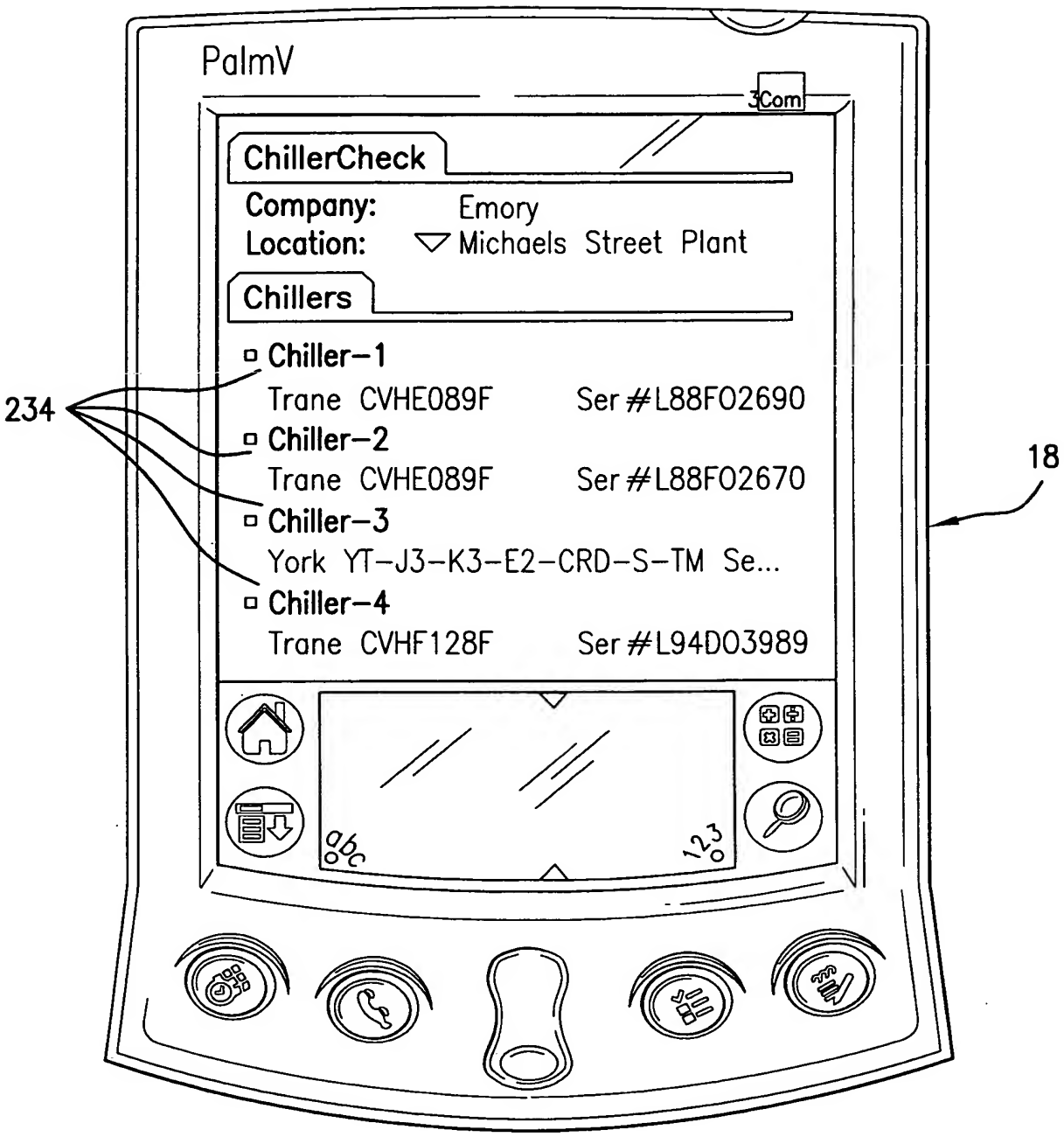

PalmV
3Com
ChillerCheck
Company: Emory
Location: Michaels Street Plant
Chillers
Chiller-1
Trane CVHE089F Ser#L88F02690
Chiller-2
Trane CVHE089F Ser#L88F02670
Chiller-3
York YT-J3-K3-E2-CRD-S-TM Se...
Chiller-4
Trane CVHF128F Ser#L94D03989
234
18

FIG.13

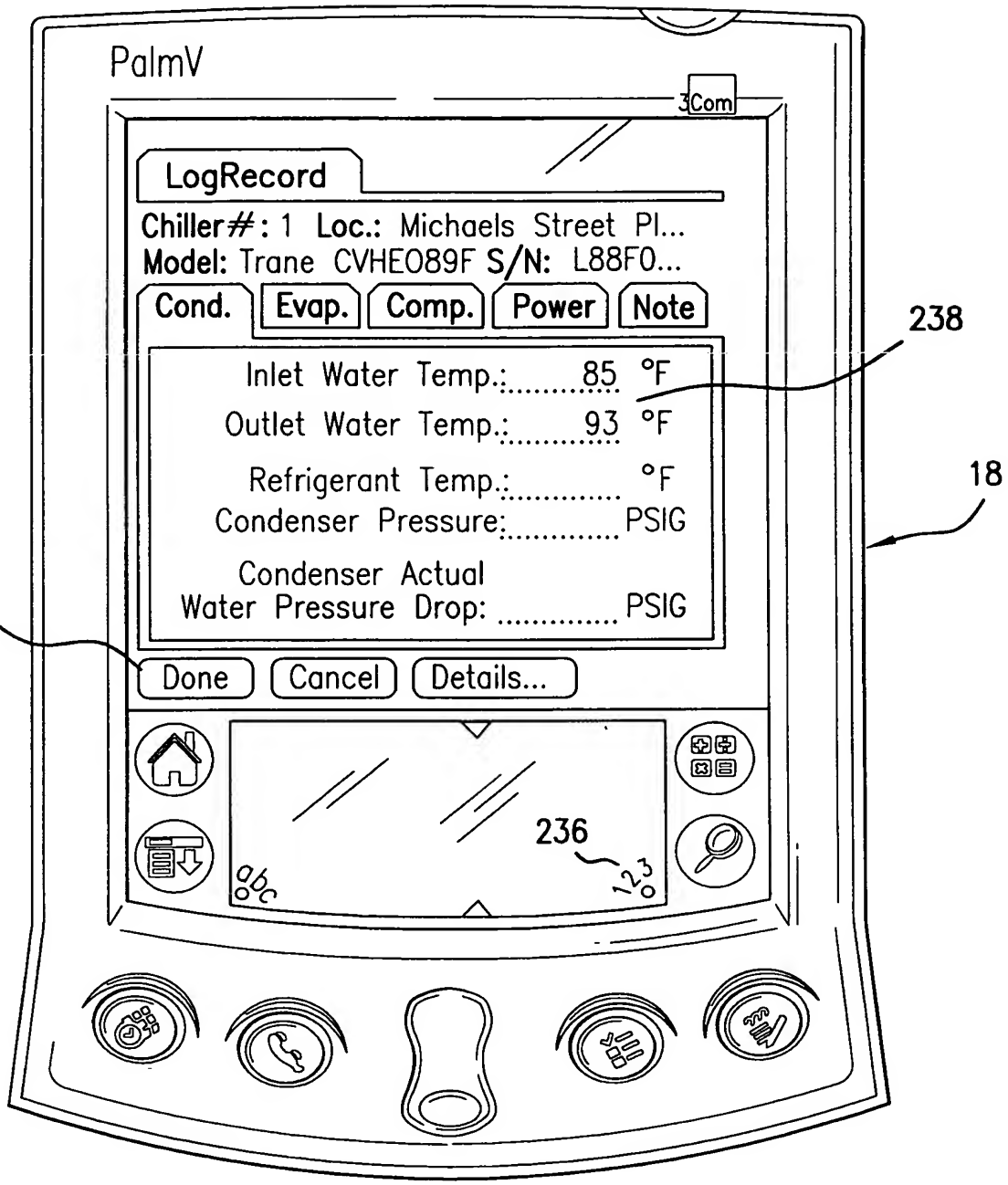

PalmV
3Com
LogRecord
Chiller#: 1 Loc.: Michaels Street Pl...
Model: Trane CVHE089F S/N: L88F0...
Cond.
Evap.
Comp.
Power
Note
Inlet Water Temp.: 85 °F
Outlet Water Temp.: 93 °F
Refrigerant Temp.: °F
Condenser Pressure: PSIG
Condenser Actual Water Pressure Drop: PSIG
Done
Cancel
Details...
abc
123
236
238
240
18

FIG.14

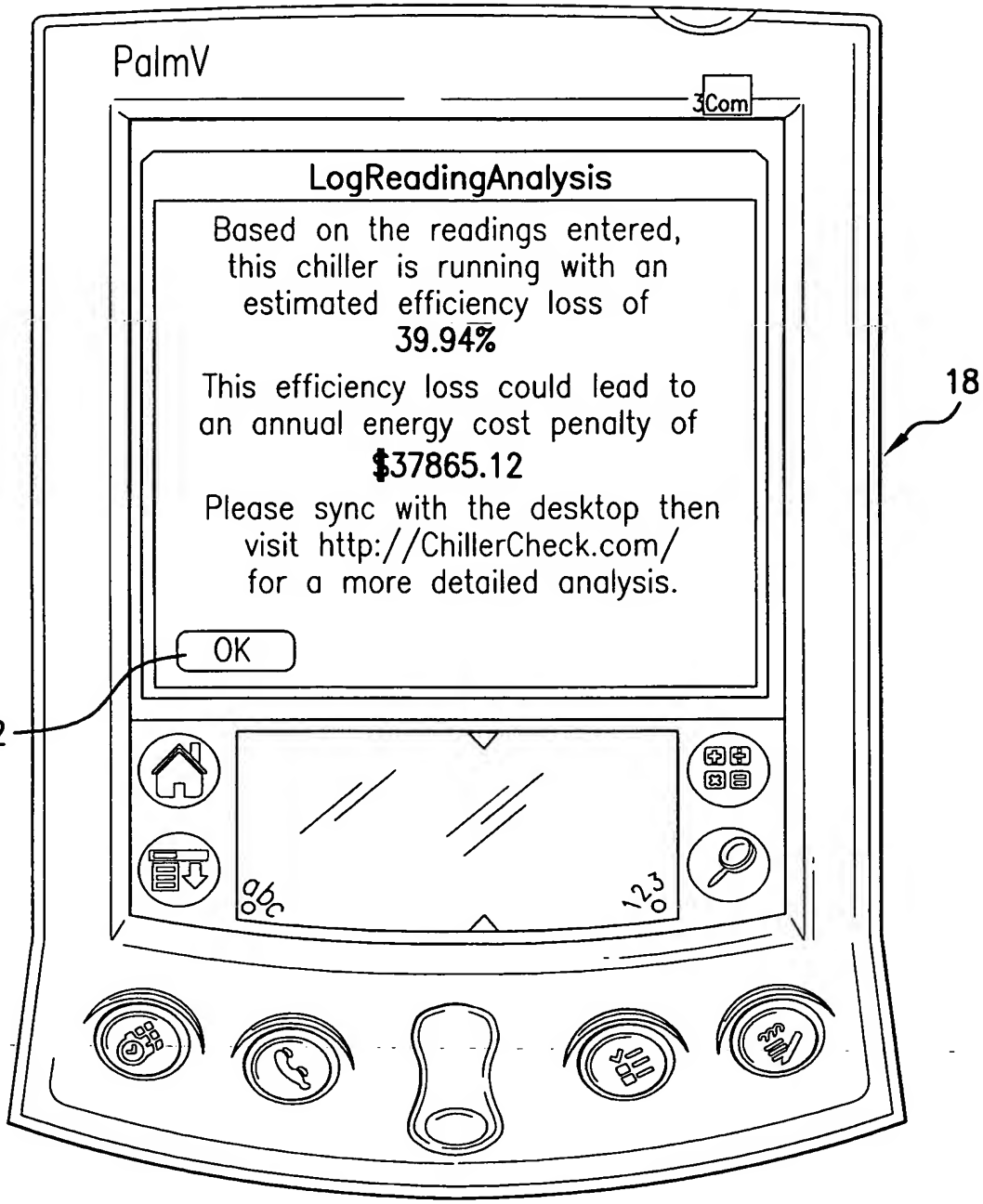
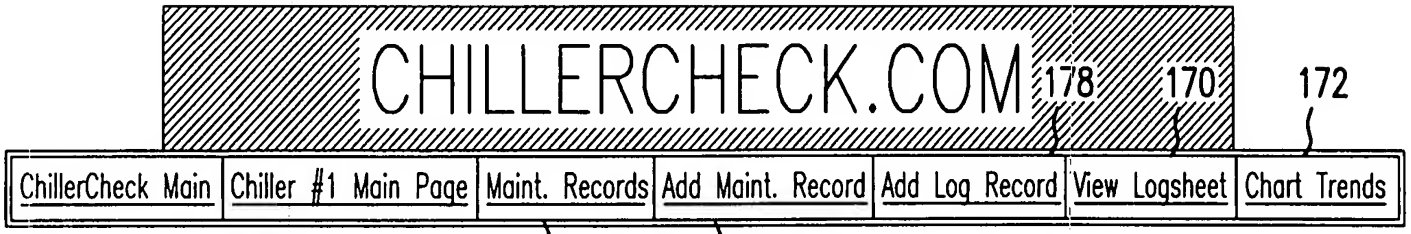

PalmV
3Com
LogReadingAnalysis
Based on the readings entered, this chiller is running with an estimated efficiency loss of
39.94%
This efficiency loss could lead to an annual energy cost penalty of
$37865.12
Please sync with the desktop then visit http://ChillerCheck.com/ for a more detailed analysis.
OK
242
18
abc
123

FIG.15

Inventor: Lawrence J. Seigel
Title: "METHOD AND SYSTEM FOR EVAL... OF AN AIR CONDITIONING APPARA... THE EFFICIENCY
Serial No.: 10/034,785
Docket No.: 03237.0001U2
Filing Date: December 27, 2001
Contact: Lawrence D. Maxwell, Esq. (404) 688-0770
Sheet 23 of 27



Add Maintenance Record for Chiller #1 at Admin Bldg.

163 165

Please fill in all information in the form below, then click the "Add Maintenance Record" button.

You will then be taken back to the Maintenance page for this chiller.

Maintenance Information

Annual Maintenance Date:	Select a Month ▾ Day ▾ Year ▾
Oil Maintenance	
Oil Change Date:	Select a Month ▾ Day ▾ Year ▾
Date Oil Added:	Select a Month ▾ Day ▾ Year ▾
Quantity of Oil Added (Gallons):	
Oil Analysis Date:	Select a Month ▾ Day ▾ Year ▾

CONT'D ON FIG.16A-1

FIG. 16A

CONT'D FROM FIG.16A

Eddy Current Tests	
Eddy Current Test Date (Condenser):	Select a Month ▾ Day ▾ Year ▾
Eddy Current Test Date (Evaporator):	Select a Month ▾ Day ▾ Year ▾
Major Stop Inspection (compressor teardown)	
Major Stop Inspection:	Select a Month ▾ Day ▾ Year ▾
Refrigerant Maintenance	
Refrigerant Analysis Date:	Select a Month ▾ Day ▾ Year ▾
Date Refrigerant Added:	Select a Month ▾ Day ▾ Year ▾
Quantity of Refrigerant Added: (Pounds):	
Tube Cleaning	
Condenser Tube Cleaning Date:	Select a Month ▾ Day ▾ Year ▾
Evaporator Tube Cleaning Date:	Select a Month ▾ Day ▾ Year ▾
Purge Maintenance	
Purge Tank Reclaim Date:	Select a Month ▾ Day ▾ Year ▾
Purge Run Time Reading When Tank Reclaimed:	

CONT'D ON FIG.16B

FIG. 16A-1

CONT'D FROM FIG.16A-1

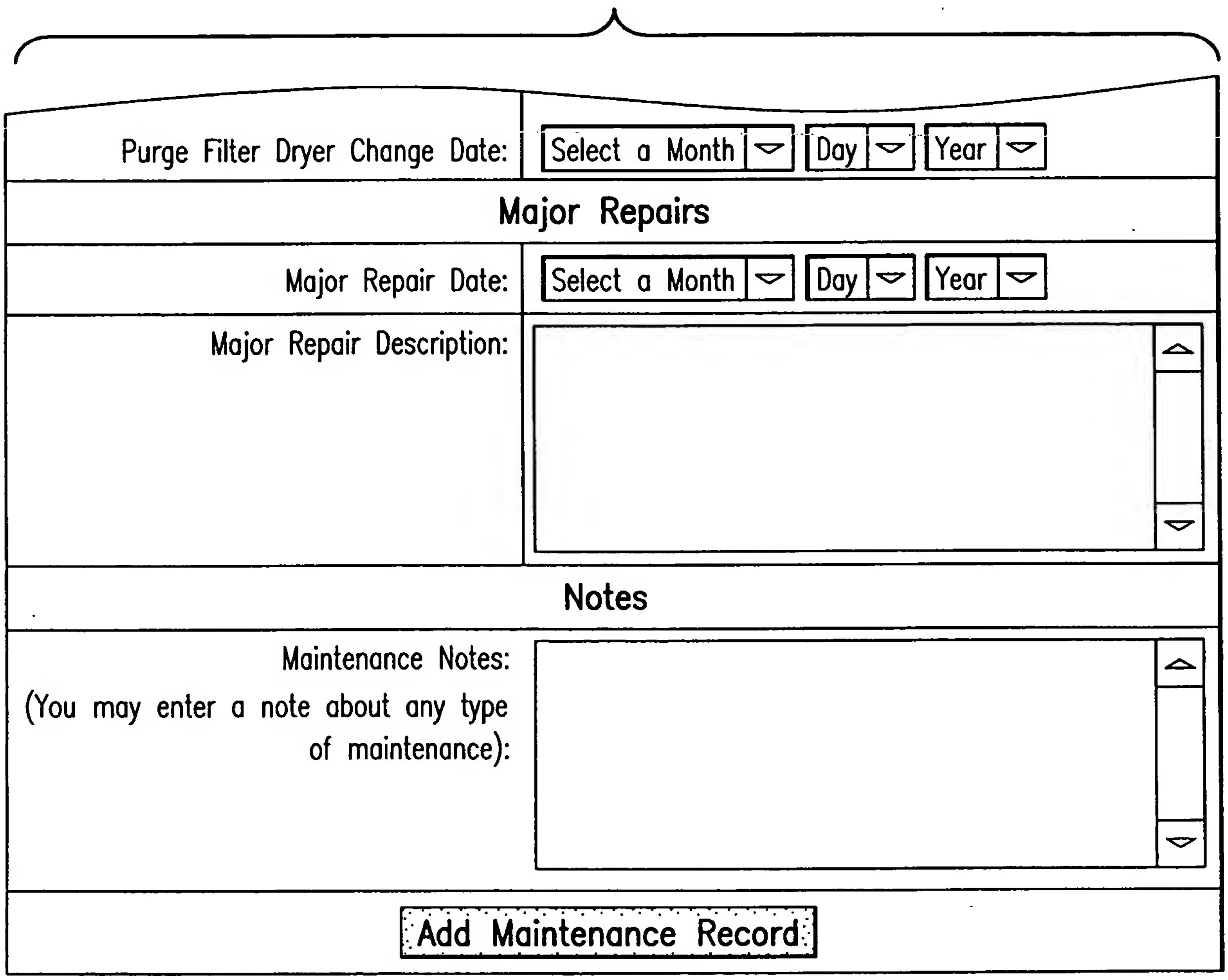
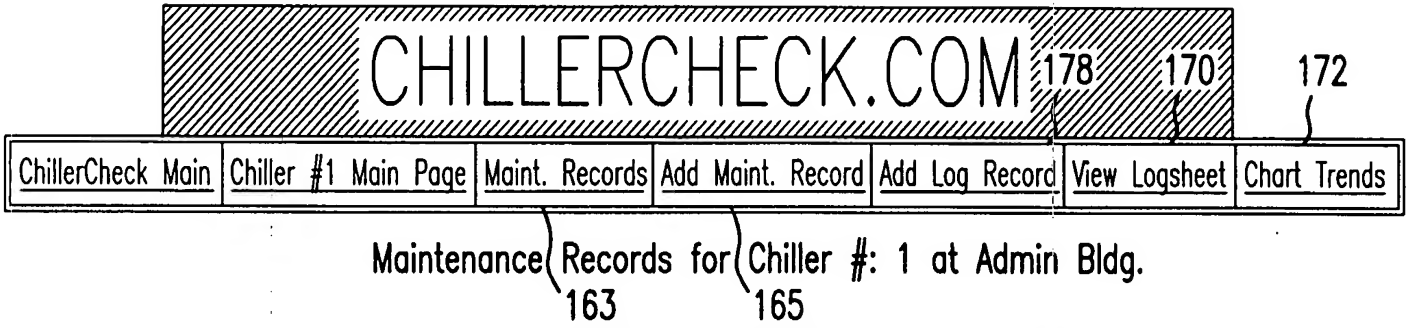


FIG. 16B

Inventor: Lawrence J. Seigel
Title: "METHOD AND SYSTEM FOR EVA... OF AN AIR CONDITIONING APPARA... G THE EFFICIENCY
Serial No.: 10/034,785
Docket No.: 03237.0001U2
Filing Date: December 27, 2001
*Contact: Lawrence D. Maxwell, Esq. (404) 688-0770
Sheet 26 of 27



Below is a list of the most recent Maintenance Operations for your Chiller #1. You may click on the name of a Maintenance Type to view all records of that type.

Maintenance Type	Most Recent Maintenance
Annual Maintenance:	October 18, 2001
Oil Maintenance	
Oil Change:	October 18, 2001
Oil Analysis:	October 1, 2001
Eddy Current Tests	
Condenser Eddy Current:	September 9, 2001
Evaporator Eddy Current:	September 10, 2001
Major Stop Inspection (compressor teardown)	
Major Stop:	January 3, 2000

CONT'D ON FIG.17-1

FIG. 17

Inventor: Lawrence J. Seigel
Title: "METHOD AND SYSTEM FOR EVAL[illegible]G THE EFFICIENCY OF AN AIR CONDITIONING APPARA[illegible]"
Serial No.: 10/034,785
Docket No.: 03237.0001U2
Filing Date: December 27, 2001
Contact: Lawrence D. Maxwell, Esq. (404) 688-0770

CONT'D FROM FIG.17

Refrigerant Maintenance	
Refrigerant Analysis:	January 3, 2000
Refrigerant Added:	August 23, 2001 – Quantity: 100 Pounds
Tube Cleaning	
Condenser Tube Cleaning:	October 19, 2001
Evaporator Tube Cleaning:	February 5, 2000
Purge Maintenance	
Purge Tank Reclaim:	February 7, 2001 – Purge Run Time at Change: 1212123
Major Repairs	
Major Repair:	April 4, 2000 Repair Description: motor burnout
Maintenance Notes	
Notes:	November 5, 2001 Note: starter problems resulted in burnout

FIG. 17–1